

600-1048-XT-6 Simon XT GSM Cellular Kit Installation Sheet

Description

The GSM Cellular Module enables wireless reporting of all alarms and other system events from the Simon XT control panel, using an all-digital GSM/GPRS wireless (cellular) network. The module can be used as the primary communication path for all alarm signaling, or as a backup to a telephone line connection to the central monitoring station.

Note: The difference between a primary reporting and a backup reporting system is determined at account creation (it can be changed later via the dealer site). If you select “Always report to CS”, the module is primary. If you select “Report when phone line is cut”, the module is backup.

Alarm.com operates the wireless alarm signaling and routing service. The module interfaces with the Simon XT panel board, fits into a special compartment inside the panel, and is powered by the control panel and panel battery.

Account creation

Before installing an Alarm.com GSM module in a Simon XT system, you must create a new customer account with Alarm.com. We recommend creating the account at least 24 hours in advance of installation to ensure that the radio is activated prior to installation.

To activate an account, go to www.alarm.com/dealer, and log on. Click the Customer tab at the top left of the page. Then click the Create Customer sub tab on the line below. You will need the following customer information to create the account:

- Customer name
- Customer address
- Customer phone number
- Customer email

- Preferred login name for the customer

At the end of the account creation process, you will be able to print a welcome letter for your customer that has their log on information and temporary password for the Alarm.com website.

Installation

Follow these guidelines during installation:

- Do not exceed the panel total output power when using panel power for the GSM module, hardwired sensors, and sirens. Refer to the panel documentation for details.
- Simon XT panels allow a maximum of one Alarm.com GSM module.
- The GSM module draws a maximum of 30 mA average during normal operation. In power-save mode, during or immediately following an AC power failure, the module will draw only 10 mA on average.
- Leave 12 to 18 in. (30 to 46 cm) of open space around the module.
- Do not install the control panel and module in a basement or other below-ground location. Doing so will negatively impact GSM signal strength.

You will need the following tools and supplies:

- Small flat-head and Phillips screwdrivers
- Screws (included)
- Antenna (included)

To install the module:

1. Disconnect the battery and AC power from the panel.
2. Open the panel by pressing the two tabs on the top of the panel (Figure 1 on page 2).

The GSM module compartment is behind the front panel that swings down, to the left of the battery compartment.

3. To reduce the possibility that the GSM module will affect the panel's RF sensor range, install the brass shield included in the kit into the module bay. If no brass shield is included in your kit, ignore this step as the shield may have been installed into the module at the factory.
4. Insert the module by angling it down and placing the antenna connector in the round opening (see Figure 2 below). Make sure to angle the top of the module when inserting the antenna connector into the opening so that the module is below the two small, plastic corner tabs in the top of the module compartment.
5. Once the module is seated evenly, carefully push the bottom of the module into the 8-pin connector beneath it.
6. Screw the antenna onto the module.

Make sure the antenna is screwed in completely (a little over two turns), but do not force it. The module must be seated correctly beneath the two small, plastic corner tabs for the antenna to thread freely through the round opening. If the module is above either corner tab, the module and the antenna will not fit correctly.

7. Pull the antenna through the back of the enclosure and insert it inside the wall.

Figure 1: Panel tabs

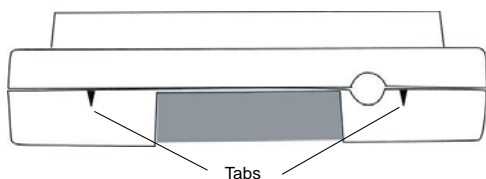
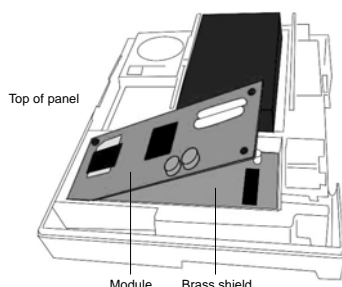


Figure 2: Installing the module



Power up

When a GSM module is connected to the control panel, the panel display will show `GSM Module OK` for 15 seconds. If it does not display that message, check the four LEDs at the bottom of the module. If the LEDs do not light up at all, do a full power cycle.

To do a full power cycle:

1. Disconnect the battery leads and unplug the system from AC power.
2. Verify that the module is inserted securely and that the antenna is screwed in completely.
3. Connect the battery leads to the battery. Observe polarity, red to + and black to -.
4. Place the battery inside the battery compartment making sure to keep the wires outside the tab holding them in place.
5. Plug the panel power transformer into the AC outlet.

It is important to connect the battery before plugging in the AC, otherwise the panel will issue a system low battery message regardless of the battery voltage level.

GSM phone test

To make the module connect to Alarm.com and the GSM network the first time, you can do a GSM phone test or initiate a panic/alarm.

To do a GSM phone test:

1. Scroll down through the control panel menu to `System Test`, and then press OK.
2. Enter the installer code (default 4 3 2 1), and then press OK.
3. Scroll down to `Comm Test`, and then press OK.

The panel displays the following GSM phone test information:

GSM Comm Test in progress. Displays when the test starts.

GSM Comm Test not available. Displays if the GSM phone tests are disabled (they are enabled by default).

GSM Comm Test no more trials. Displays if the allocation of ten tests has been used up. At power up, the module starts with an allocation of ten GSM phone tests. One test allocation will be added every 24 hours after that to replenish the ten tests allocation. If more GSM phone tests are required, do a full power cycle.

GSM test signal sent OK. Press Status to end.

Displays when Alarm.com has received and acknowledged the signal. This does not guarantee that the signal went through to a central station; it confirms that the Alarm.com operations center received the signal. Contact the central station directly to verify that the signal was received on the correct account and that the central station routing settings have been set up correctly. The signal may not go through to the central station if the central station account settings were entered incorrectly on the Alarm.com dealer website, or if Alarm.com was unable to send the signal successfully to the central station receivers. In these cases, the panel displays a failure to communicate message.

Control panel settings that change

Some panel settings change automatically when the GSM module is connected to the control panel. These settings should not be altered by the installer and include:

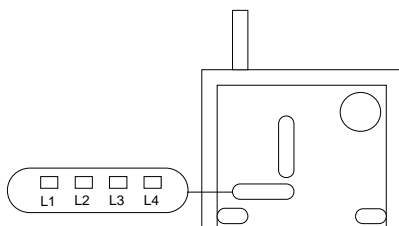
Sensor/zone 40. Upon initial module power up, the panel recognizes and learns (programs) the GSM module as sensor/zone 40 and assigns "GSM Module" as the sensor/zone name. Any device previously residing in panel memory as sensor/zone 40 is automatically deleted and must be learned (programmed) into panel memory using an available sensor/zone number between 01 and 39.

Clock. The GSM module sets the panel clock when it connects to Alarm.com and then updates it every 18 hours. It is important to select the correct panel time zone on the Alarm.com website, or the panel time will not be accurate. If a system is powered up before the customer account has been created, the time zone will default to Eastern Time.

LEDs

Status LEDs indicate network and module status. The LEDs are visible through an opening at the back of the panel (see Figure 3 below).

Figure 3: Status LEDs



- L1 (red) = LED 1
- L2 (yellow) = LED 2
- L3 (green or yellow) = LED 3
- L4 (green or yellow) = LED 4

LED 1 error indicator. Flashes one to eight times in an 8-second interval to indicate specific error conditions. The number of flashes indicates the error number. If there are two or more errors at the same time, the errors will be flashed one after the other. The LED will stay off for at least 4 seconds between errors.

Table 1: LED 1 errors

# of Flashes	Error
1	The module cannot communicate with the panel. Do a power cycle on the panel. If it still doesn't work, lift the module out of the panel and reinsert it. If that doesn't fix the problem, try a different module. If that doesn't fix the problem, try a different panel.
2	The SIM card is missing. The SIM cardholder can be found on the Module. Verify that the SIM cardholder is closed securely and that there is a SIM card in the holder.
3	The module is trying to register on the GSM network. This is normal if it doesn't last more than 30 seconds. If it persists for more than a few minutes, the module is having problems registering with the GSM network. Check LED 4 for signal level. If the signal level is too low, change the panel's location or use a remote antenna option. If the signal is good, the module may be roaming on a GSM network that doesn't partner with our GSM providers, or the SIM card was not activated yet because the Alarm.com account was not created correctly. If the module had been communicating in the past, there may be new RF interference from some other device or building.
4	The module is registered on the GSM network, but cannot connect with Alarm.com. Contact Alarm.com technical support at 866.834.0470.
5	The radio portion of the module is not working correctly. If this persists for more than a few minutes, the module may need to be replaced. This error is extremely rare so verify that the module is flashing 5 times.
6	This is an error only if it persists for more than a minute. Otherwise, it is just an indication that the module is fixing an unusual condition regarding communication with the GSM network.
7	The module being used has been programmed for a regular Simon panel (not Simon XT). Please label the module appropriately and swap it with a different Simon XT module.
8	If this error persists, the account may have been set up incorrectly. Contact Alarm.com technical support at 866.834.0470. You will be asked to check the serial number of the module.

LED 2 panel communication. Flashes with every communication between the module and the panel. The pattern is a series of quick flashes every 2 seconds in idle mode or every 4 seconds in power save mode.

LED 3 GSM communication. Flashes with every communication between the module and its radio unit in idle mode, and with every communication with Alarm.com in connected mode. In power save mode, this LED flashes in unison with LED 2.

LED 4 GSM signal level. Flashes up to five times to indicate signal strength, or toggles on/off when communicating with Alarm.com servers. The number of bars may not correspond to the bars shown on your cell phone. A level of five bars is obtained only in the strongest signal conditions.

Signal level is updated every 10 seconds if it fluctuates, or every 30 seconds if it is stable. If LED 4 is not flashing it indicates one of the following:

- The module is in power save mode.
- The module is just powering up.
- There is no GSM coverage in the area.

We recommend a signal level of two or higher for proper operation of the module.

Module modes

The module modes (states) include:

Idle mode. AC power is okay and the module is not currently talking to Alarm.com servers.

- LED 1 flashes errors, if any.
- LED 2 indicates communication with panel.
- LED 3 indicates communication with radio unit.
- LED 4 indicates the signal level (0 to 5 bars).

Power save mode. The module just powered up, or AC power is down, or AC power was recently restored and the battery is charging. The module draws 10 mA while in power save mode. It is fully functional and will go into connected mode as soon as a signal needs to be sent. Pressing the 5 key for 10 seconds or more will switch the module into idle mode and update the signal level reading. The system will go into idle mode every 2 hours to check for any incoming messages.

- LED 1 is inactive.
- LED 2 indicates communication with panel.
- LED 3 flashes in unison with LED 2.
- LED 4 is inactive.

Connected mode. The module is currently talking to Alarm.com servers. The module stays in connected mode for at least 4 minutes after reporting an event to Alarm.com, unless the 5 key is pressed for 10 seconds or more, which will cause the module to go back to idle mode.

- LED 1 flashes errors, if any.

- LED 2 indicates communication with panel.
- LED 3 indicates communication with Alarm.com.
- LED 4 alternates 2 seconds on, then 2 seconds off.

Sleep mode. The panel is not connected to AC power, or there is an AC power failure and the battery level is low. The module will connect to Alarm.com to send a signal, but otherwise is in a state that draws no power. LED 2 and LED 3 may occasionally flash in sleep mode.

Special key presses

Press any of the following panel keys for 10 seconds or more and the related information will display on the panel. Most messages display for less than 30 seconds, but can be cut short by pressing the # key for 10 seconds.

1 key. Displays the 10-digit module serial number. This number is needed to create the Alarm.com customer account.

2 key. Displays the module firmware version.

3 key. Displays the 15-digit SIM card number. You may be asked for this number by a technical support representative to verify that the module was activated on the GSM network.

4 key. Displays a list of report types that the module will send to Alarm.com and to the central station.

5 key. Displays the wireless signal strength level and module status or error, if any. This key is also used to force the module to read the signal strength.

6 key. Displays the battery voltage as read by the module to two decimal places, and the AC power status.

8 key. Displays the GSM frequency at which the radio is currently connected. "High" equals 1900 MHz, and "Low" equals 850 MHz.

Report types (4 key)

Press the 4 key for 10 seconds or more to get a list of the types of events that will be reported by the module. These types will be displayed on the keypad. Reports can be turned on or off via the Alarm.com dealer website and may depend on the customer service plan.

Table 2 on page 5 describes the reporting codes from the 4 key. Codes not included in the table are for Alarm.com internal use only.

Table 2: Reporting codes

Code	Description	Code	Description
Tst	Phone test	Pgm	Panel programming
Ala	Alarms	Tpr	Tamper
Sys	System troubles	Can	Cancel
Zon	Sensor troubles	Nor	Normal activity
Arm	Arm/disarm	Pow	Modem online
Byp	Sensor bypass	Png	Pings
Ac	AC power failure	C&S	Smash and crash
Pho	Phone failure	Bat	Panel low battery

Note: Certain report types are not included with all Alarm.com service plans. Contact Alarm.com for more information.

GSM status and signal level (5 key)

Press the 5 key for 10 seconds or more to get the signal level and the module status or error, if any. The panel will display bars for the signal level (0 to 5) and a number (2 to 31) followed by the current mode.

Table 3 below describes the module status indications.

Table 3: Module status

Status	Description
Idle	Most common state.
Roaming	Roaming on partner network.
SIM missing	Same as 2 flashes on LED 1.
Power save mode	AC power is down.
Registering	Same as 3 flashes on LED 1.
Connection error	Same as 4 flashes on LED 1.
Radio error	Radio is not operating correctly, same as 5 flashes on LED 1.
Server error	Same as 8 flashes on LED 1.
Connected	Currently talking to Alarm.com servers.
Connecting...	In the process of connecting to Alarm.com.
Updating...	Updating signal level.

Pressing the 5 key for 10 seconds while the module is in power save mode or is connected to Alarm.com (but not actively transmitting), will allow the module to refresh its signal level reading. This can be useful during panel installation while looking for the best location, and when the module is likely to go in power save mode because the transformer is unplugged, or because it is connected to Alarm.com when it cannot get a signal level reading.

Improving wireless signal strength

For optimal wireless signal strength, follow these guidelines:

- Install the module above ground level, as high up as possible within the structure.
- Install the module near or adjacent to an outside-facing wall of the structure.
- Do not install the module inside a metal structure or close to large metal objects or ducts.
- Make sure to follow the antenna positioning guidelines that are included with the antenna. Certain antennas must be oriented in a specific way in order to receive signals.
- Upgrade the antenna. If you are using the ¼ wave antenna included with the GSM gateway module, upgrade to a remote cable antenna. Contact Alarm.com technical support at 866.834.0470 for antenna options.

As you make changes to the module location or antenna to improve strength, you can press and hold the 5 key on the panel keypad to get an updated signal strength reading on the display.

Troubleshooting

- The LEDs are not responding.
Turn off the panel power and verify that the module is correctly inserted into the panel.
- The module status LEDs do not turn on immediately after initial power up.
You may need to wait a few minutes after powering up for the module to register on the network.
- Panel/sirens are beeping even though the system is not armed.

Press the touchpad status button and the panel reports the trouble condition. Consult the panel documentation for details.

Note: If the GSM module is powered down for a short time, it may receive buffered messages from Alarm.com when module power is restored.

- The panel will not do a GSM phone test.
Only 10 GSM phone tests are allowed in a 24-hour period. If more GSM phone tests are required, power cycle the control panel.

New user web setup

This section describes how to help your customers set up their website account, and only applies to web/interactive customers. You can skip this section if your customers are using Alarm.com for wireless signaling only.

Before a customer can configure their website account, the Alarm.com account for that customer must be created on the dealer website, and the GSM module associated with the account must be installed successfully.

To log on and access the New User Setup Wizard, go to www.alarm.com (or custom dealer website address) to complete the new subscriber setup procedure.

Customers will need the following:

- The website login and temporary password included on the Alarm.com welcome letter generated when the account was created by the dealer.
- A list of their service sensors and touchpads with corresponding IDs.
- At least one phone number and email address where notifications can be sent.

Note: If not all sensors and touchpads were learned (programmed) in before powering up the module, an updated sensor list must be requested by sending a command from the dealer site under Support Options > Sensor List.

At least one sensor must be learned (programmed) into the panel to complete the new subscriber setup.

Specifications

Compatibility	Simon XT panels with software versions 0.0.H and later
Voltage	6 V nominal (operating range 5.1 to 12 VDC)
Standby current	30 mA (10 mA in power save mode)
Peak current	1.7 A
Cellular network	Quad-band GSM/GPRS
Dimensions (H x W)	4-1/16 x 1-7/8 in.
Operating temperature	32 to 120°F (0 to 49°C)
Storage temperature	-30 to 140°F (-34 to 60°C)
Relative humidity	90% noncondensing max.
Listings	FCC Part 15, PTCRB, Cingular

Regulatory information

FCC

This device complies with part 15 of the FCC rules for Class A devices. Operation is subject to the following conditions.

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

In accordance with FCC requirements of human exposure to radiofrequency fields, the radiating element shall be installed such that a minimum separation distance of 20 cm is maintained from the general population.

FCC ID: MIVGSM0308

IC: 4160A-GSM0308

ETL

A representative sample of this product was evaluated and found to comply with the applicable requirements of the standards for:

- Household Fire Warning Systems Units, ANSI/UL 985, 5th Ed rev 04/04
- Household Burglar-Alarm System Units, ANSI/UL 1023, 6th Ed rev 12/04
- Digital Alarm Communicator System Units, ANSI/UL 1635, 3rd Ed rev 12/04
- Residential Fire Warning System Control Units, ULC-S545, 2nd Ed dated 07/02
- Household Burglar Alarm System Units, ULC Subject C1023, 1st Ed dated 01/74

Contact information

For contact information, see www.utcfireandsecurity.com or www.interlogix.com.

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